Best Practices in Transgender Health

A Clinician's Guide

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KEYWORDS

• Transgender health • LGBTQ health • Organ inventory • Gender affirming care • Annual examination • Transgender mental health

KEY POINTS

- Transgender patients often look for subtle clues in the office environment to suggest that the practice is transgender friendly; as such, creating a trans-affirming practice is a crucial first step to providing competent care.
- Providers should perform an annual organ inventory and keep this up to date in their electronic medical record system to help guide preventative screenings.
- As a general rule, if an individual has a particular body part or organ and otherwise meets criteria for screening based on risk factors or symptoms, screening should proceed, regardless of hormone use.
- There are standard guidelines for initiation and continuation of hormone replacement therapy; however, it is important to have an open dialogue with your patient regarding their goals of therapy and reasonable expectations.

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INTRODUCTION

Providing culturally competent and medically knowledgeable care to the transgender and the gender nonconforming community is increasingly requested and falls within the realm of primary care practice. This patient population has unique health care needs, is subject to a variety of health care disparities, and is often reticent to seek medical care owing to prior negative experiences.[1] Few medical schools, medical residency programs, or training programs for advanced practice providers provide formal training in this arena.[2] The purpose of this article is to offer current primary care clinicians an overview of best practices as they relate to health care for transgender individuals. This article is by no means a comprehensive guide, but is intended as a starting point for clinicians so that they may provide high-quality, affirming, and value-based care to their transgender patients.

HEALTH DISPARITIES AND SOCIAL DETERMINANTS OF HEALTH

Social determinants of health often contribute to health disparities among vulnerable populations. In the transgender population, relevant social determinants include chronic stress, higher rates of homelessness, unemployment, frequent victimization, and high Adverse Childhood Events scores.[3] One study suggested that 28% of transgender individuals were harassed in medical settings, 19% were denied care, and 2% experienced violence.[4] Owing to inconsistent access to health care in general, and more specifically gender-affirming care, the transgender population is at increased risk of experiencing retraumatization in medical settings.[5] Approximately one-fifth of the transgender population has experienced homelessness, 12% of whom have been homeless within the last year.[6] Income disparities exist with poverty levels twice the nation average and a high rate of people in the lowest income bracket (<$10,000 per year).[4] Of those who were out (had disclosed their gender identity and/or sexual orientation) to their immediate family, 10% reported experiencing violence and 8% were kicked out of the house because of their disclosure.[6]

Relevant medical literature supports the premise that the intersection between being a gender minority (ie, transgender) and a racial minority is associated with increased rates of poverty, unemployment, and greater health disparities when compared with the Caucasian transgender population.[6] Disabled and undocumented people who are transgender experience increased discrimination as well.[3] Environmental factors that affect the health of lesbian, gay, bisexual, transgender (LGBT) individuals include legal discrimination, a lack of laws protecting children from bullying in schools, a lack of social programs, and a shortage of health care providers who are knowledgeable and culturally competent.[3]

Other factors that contribute to this population's health disparity include high uninsured rates and greater reliance on public insurance.[6] For example, only 40% of transgender individuals had access to employer health insurance compared with 62% of cisgender individuals (one whose gender identity matches their sex assigned at birth).[6] Another source of disparities in LGBT health care comes from a long history of anti-LGBT bias in health care that has resulted in fewer people from this population seeking care and to an overall decrease in access to care.[7] Access to knowledgeable providers willing to care for transgender patients is limited. Homophobia and transphobia persist in some health care settings, with limited emphasis during training on cultural empathy or understanding among health care professionals, which presents challenges for the provision of appropriate primary care.[8–11] Additionally, challenges for aging or disabled patients include finding skilled nursing facilities, rehabilitation units, and/or assisted living facilities that allow rooming in for same sex couples, allow family

of choice to make medical decisions, set appropriate visitation parameters, and respect the gender identity of transgender patients.[12] **Table 1** includes selected key health disparities in the transgender population.

CREATING A TRANS-AFFIRMING PRACTICE

Research suggests that LGBT patients often search for subtle cues in the environment to determine if a practice is friendly.[13] Because of this, it is crucial for practices to create a gender-affirming environment throughout the clinical practice. Characteristics of such an environment are varied and impact all aspects of the practice. Intake forms should be inclusive of a wide range of gender identities and patients should be addressed by their preferred pronoun(s).[13] All staff should be trained to refer to patients by their preferred pronouns and their correct gender identity. The physical office space should display LGBT-friendly symbols, stickers, photographs, and posters representing a diverse patient population.[13] Brochures in the waiting room should include material pertinent to the transgender community. Within the examination room, the clinician should foster a welcoming environment by asking open, nonjudgmental questions. The provider should ask about the patient's gender identity and their preferred pronoun(s), which should be used when addressing the patient throughout the visit.[13] The provider should feel confident in conducting an organ inventory (described elsewhere in this article), which should guide preventive care for the patient. Ideally, the electronic health record (EHR) should be able to capture sexual orientation and gender identity information accurately for purposes of patient care and appropriate handling of insurance and billing functions.[14–16]

THE ELECTRONIC HEALTH RECORD

The EHR can become a barrier to care for transgender patients if it does not incorporate appropriate collection of sexual orientation and gender identity data.[15] Key components of appropriate sexual orientation and gender identity data collection include capture of the patient's preferred name, gender at birth, sexual orientation, and gender identity.[14–16] If the EHR is not built to collect these data appropriately at registration and intake, many difficulties can arise for the patient and the provider entity. Problems can include nonaffirming experiences for patients called by the wrong name, identified by inappropriate pronouns, or treated incorrectly based on provider or staff assumptions about sex, gender identity, and sexual orientation and behaviors. Surgeries appropriate to the patient's situation may be denied or questioned based on incorrect assumptions about gender identity or the presence or absence of organs. Laboratory tests that are appropriate for the patient's gender identity may be reported with the incorrect reference ranges based on gender as reported in the EHR. Patients may also be denied insurance payment for appropriate health care services and provider entities may encounter significant billing and compliance issues because of inaccurate data used in health care documentation.

UNDERSTANDING THE MEANING OF "TRANSITIONING" FOR TRANSGENDER PATIENTS

The process of transitioning one's gender is complex and varies from individual to individual.[17] Individuals may complete some, none, or all of the components of the 3 broad categories of transitioning (social, medical, and surgical) over the course of their lifetimes.[17] Underlying the decision to transition requires identification of the dysphoria brought about through identification with the sex and gender roles assigned at birth

Table 1
Key health disparities in the transgender population

	Key Transgender Health Disparities
Youth[6,47–51]	• LGBT youth are 2–3 times as likely to attempt suicide • LGBT youth are more likely to be homeless • Homeless youth who are LGBT are more likely to report victimization, substance abuse, and to have more sexual partners and more psychopathology than their heterosexual comparison • Youth are frequently bullied at school and are more likely to be victims of sexual violence than their peers according the Youth Risk Behavior Survey in 2016 • At school (K-12) youth who were perceived as transgender were likely to be verbally harassed (54%), physically attacked (24%), and sexually assaulted (13%), resulting in 17% of kids leaving school owing to the environment • HIV prevalence in male-to-female youth varied from 19% to 22%, showing them to be at high risk for infection
Access[3,6]	• Transgender individuals are less likely to have health insurance than heterosexual or LGB counterparts • 29% of the transgender population lives in poverty compared with 12% of the US population • One-third of USTS respondents had a negative experience with a health care provider related to being transgender within the last year • 23% of USTS participants did not seek health care owing to fear of being mistreated • 25% of USTS participants had a health insurance problem related to being transgender in the last year • 55% of USTS participants had sought coverage for surgery and were denied • 25% of USTS participants had sought care for hormones and were denied • 33% of USTS participants did not go to a health care provider owing to the expense • The unemployment rate in the transgender population in the USTS survey was 15% compared with 5% in the cisgender population

Infections[51–53]	• Some studies suggest a disparity in the availability of HIV treatment services. A recent four-city study found that transgender women were less likely to receive highly active antiretroviral therapy than a control group of MSM, heterosexual women and men, and male intravenous drug users
	• Hepatitis C prevalence rates between 11% and 24% and hepatitis B rates from 4% to 76% among specific samples of transgender women are estimates based on limited studies
	• A prevalence rate of tuberculosis of up to 13% among transgender women in San Francisco
	• HIV infection is highest among transgender women of color, with HIV prevalence rates ranging from
	  ○ 41% to 63% among African-American transgender women
	  ○ 4% to 50% among Latina transgender women
	  ○ 4% to 13% among Asian-Pacific Islander transgender women
	• HIV prevalence in transgender men (female to males) is estimated to range from 2% to 3%, which is still elevated compared with cisgender men
	• Some limited research has found elevated rates of sexually transmitted diseases with varying prevalence rates of
	  ○ Syphilis (3%–79%)
	  ○ Gonorrhea (4%–14%)
	  ○ Chlamydia (2%–8%)
	  ○ Herpes (2%–6%)
	  ○ Human papillomavirus (3%–7%)

(*continued on next page*)

Table 1 (*continued*)

	Key Transgender Health Disparities
Substance abuse[21,51,54]	• Adolescents are 2.5 to 5.0 times more likely to use substances (including vaping, smoking, drinking, heavy episodic drinking) than their nontransgender peers • Transgender adolescent youth are at higher risk of recent substance use and earlier onset of substances, which increases risk for long-term addiction • Increased gender and sexuality based harassment is associated with increased substance abuse at every grade • Some studies have shown that marijuana, crack cocaine, and alcohol are the most commonly used drugs by transgender people • Studies have also found alarming rates of methamphetamine use (4%–46%) and injection drug use (2%–40%) • Some studies suggest that tobacco use rates can range from 45% to 74% • Access to substance abuse treatment services can be very difficult for transgender people. Studies have suggested that barriers to treatment services often include: ○ Discrimination, ○ Provider hostility and insensitivity, ○ Strict binary gender (male/female) segregation within programs, and ○ Lack of acceptance in gender-appropriate recovery groups.
Obesity[50]	• LGBT youth have higher rates of obesity, which predisposes to metabolic syndrome and diabetes
Cancer[55–59]	• Transgender men were more likely to have an inadequate pap than cisgender women and this increased with duration of testosterone therapy • Transgender men were less likely to be up-to-date on pap screenings (AOR, 0.63; $P<.01$) • Although rare, there is an increased risk for vaginal, cervical, and endometrial cancer with hormone therapy • Male to female transgender persons are not at higher risk than biological women for breast cancer and thus not recommended for screening mammography • Association between masculinizing hormone therapies and elevated liver enzymes, loss of bone mineral density, and increased risk for ovarian cancer • Underutilization of health care in general and limited screening owing to gender mismatch
Mental health[6,48,60]	• 39% had serious psychological distress in the previous month compared with only 5% of the US population • Higher rates of depression and anxiety • When compared with MSM and bisexually active women, transgender women were most likely to report depressive symptoms and suicidal ideation
Suicide[6]	• 40% of respondents in the USTS had attempted suicide in their life time compared with 4.6% of the general population • 7% had attempted suicide in the last year compared with 0.6% in the US population
Violence[6,37]	• Approximately 66% of transgender people have been sexually assaulted in their lifetime • 50% of undocumented transgender individuals had been homeless in their lifetime and 68% had faced intimate partner violence • 16%–60% of transgender people are victims of physical assault or abuse • Social stigmatization and other factors may additionally lead to an underreporting of acts of violence committed against transgender people

Abbreviations: MSM, men who have sex with men; USTS, US transgender survey.

and acknowledgment of a desire to see oneself and to be seen by others as a different sex and/or gender. Throughout different components of transitioning, sexual orientation can change.[18] This fluctuation tends to occur more commonly with individuals who are attracted to the opposite biological sex before transitioning.

Social transition includes the decision to present publicly as one's gender identity and may include changes in appearance, use of pronouns, preferred name, and sexual behaviors and partnering.[17] Social/behavioral interventions include resocialization efforts to learn the mannerisms, communication, and interactions styles of the preferred gender, tucking of the penis or binding of the breasts, and voice coaching. Support for mental health conditions, screening for depression and anxiety, and assessment of readiness to begin medical transition is important in this phase of transition.

Medical, or endocrine, transition includes the decision to seek medical (typically hormonal) therapy to shift the appearance and function of hormone-producing organs, hair growth patterns, and other outward signs gender.[17] World Professional Association for Transgender Health has developed Standards of Care that include diagnosing gender dysphoria, treating comorbid conditions and making sure mental health conditions are stable, education about the medical treatment under consideration, and the ability to give consent before medical treatment.[19] Ideally, this phase of transition includes mental health support, including management of mood, anxiety, and other conditions. A systemic review of the effects of hormone therapy on psychological functioning showed a statistically significant improvement in mental health conditions during the transition and affirming process.[20]

Surgical transition includes the surgical augmentation of internal and external hormone and sex-related organs.[17] Options include surgery to remove the Adam's apple (tracheal shave), orchiectomy, vaginoplasty, and breast augmentation for male-to-female individuals. For female-to-male transitioning patients, surgical options include mastectomy, hysterectomy and salpingo-oophorectomy, metoidoplasty, phalloplasty, and sexual reassignment surgery.

THE HISTORY AND PHYSICAL EXAMINATION

General Considerations

When taking a patient's history and conducting a physical examination, it is crucial to do so in a gender-affirming way. History taking should be done in an open, nonjudgmental fashion, considering individualized changes and characteristics in the setting of hormone administration and/or surgical interventions that have taken place. The clinician should be sensitive to potential prior negative experiences and trauma, especially within the health care environment.[4] Physical examination should be relevant to the anatomy that is present, regardless of gender presentation. Providers should have an understanding that secondary sexual characteristics may present on a spectrum of development in patients transitioning with hormone therapy and somewhat depend on the durations of use and age at initiation.

The Organ Inventory

An organ inventory is an anatomic survey that allows providers to record the organs each patient has at any given point in time.[21] Such an inventory should be conducted annually for all transgender patients. Once someone has transitioned socially, medically, and/or surgically, they may change their gender marker in the medical record. It then becomes important to know sex assigned at birth, current hormone-producing organs, and current exogenous hormones. An organ inventory allows

providers to maintain a record of the patient's medical transition history and current anatomy. In turn, this inventory drives routine health care screenings that a patient requires. A sample organ inventory is displayed in **Box 1**.

The Physical Examination

There are likely to be special considerations with regard to the pelvic examination in both male-to-female and female-to-male patients. In transgender females who have undergone gender reassignment surgery, the anatomy of the neovagina differs from a natal vagina.[21] It is a blind cuff, without a cervix or surrounding fornices and could have a more posterior orientation. Because of this, an anoscope should be used when visual inspection is necessary.[21] For the transgender male, the clinician should have an understanding that the pelvic examination may be traumatic or induce anxiety.[21] Transgender men are less likely to be up to date on cervical cancer screenings and have a higher rate of inadequate cytologic sampling.[21] Additionally, it is imperative to make clear to the laboratory that the sample provided is a cervical pap smear even, if the gender listed is male to avoid incorrect handling of the specimen.[21]

Other special considerations include chest binding and tucking of the testicles and penis. Chest binding is done to create a more masculine appearance of the chest; however, it may lead to skin breakdown or other complications of the skin.[22] Patients may be hesitant to remove the binder during an examination.[23] Safe binding education is recommended for all trans male patients who have not undergone mastectomy. Tucking of the testicles and penis may lead to hernias or other complications at the external inguinal ring or the potential for skin breakdown at the perineum.[22] Thorough

Box 1
Sample organ inventory

Organ inventory
Cervix
Uterus
Natal vagina
Neophallus
Penis
Prostate
Testes
Neovagina
Organ inventory with laterality
Left breast
Left fallopian tube
Left ovary
Left testis
Right breast
Right fallopian tube
Right ovary
Right testis

and sensitive history taking, examination, and education are recommended for all transgender patients.[22]

Hormonal Therapy: Consideration of Risks

When caring for transgender patients, the clinician should counsel on risks of cross-sex hormone therapy, particularly before the initiation of therapy and at each subsequent visit, weighing the risks and benefits to guide therapeutic decision making. It is critical to consider risks in the context of family history and medical comorbidities. Unsupervised hormone therapy is not advised[24] and physicians should ask patients about any history of previous hormone use not under the supervision of a medical provider.

For transgender females using estrogen therapy, high-risk adverse outcomes include thromboembolic disease, and moderate risk adverse outcomes includes hyperprolactinemia, breast cancer, coronary artery disease, cerebrovascular disease, cholelithiasis, and hypertriglyceridemia.[25] Given these risks, it is strongly recommended for clinicians to encourage tobacco cessation, although smoking is not an absolute contraindication to estrogen. If a transgender female has a prior history of a sex hormone–responsive cancer (breast or pituitary), consultation with an oncologist before initiating therapy is critical.[21] Antiandrogen therapy is typically used in prostate cancer therapy; however, there is less clear of a role of estrogen on the development of prostate cancer.[26] For those with family history or personal history of venous thromboembolism, an anticoagulative workup should take place to guide decision making in antiplatelet or anticoagulation therapy.[21] Routine prophylaxis with antiplatelet therapy is not recommended based on current evidence. In patients with a high risk of venous thromboembolism, the preferred route of administration of estrogen is transdermal to minimize risk because it avoids first-pass liver metabolism and induction of clotting factor production.[21] Although no evidence exists to strongly support the use of 81 mg/d aspirin in smokers, it can be considered as an additional preventive measure while using informed assessment of the risk versus benefit between venous thromboembolism prevention and gastrointestinal hemorrhage. As with cisgender women, avoidance of synthetic estrogens other than 17 beta estradiol and conjugated estrogens decreases the risk of venous thromboembolism by nearly one-half.[21]

In transgender males, the use of testosterone carries a very high risk of erythrocytosis (hematocrit >50%) and moderate risk of severe liver dysfunction (transaminases >3 times the upper limit of normal). The risk for coronary artery disease, cerebrovascular disease, and hypertension increases to that of a cisgender male. There may also be an increased risk for breast and/or uterine cancer.[25]

For both transgender males and females, it is important to avoid supraphysiologic dosing of sex steroids because the associated risks are more likely to arise and are worsened in this scenario.[27] The most recent Endocrine Society guidelines recommend regular clinical evaluation for physical changes and potential adverse outcomes after initiation of sex hormones and laboratory evaluation of sex steroids hormone levels every 3 months during the first year of therapy for both male and female transgender patients, then once or twice yearly.[25]

Monitoring of Hormonal Therapy

The endocrine transition provides an important opportunity for appropriate regular medical monitoring. Clinicians should monitor weight and blood pressure and conduct appropriate physical examinations. They should assess various health questions, including tobacco use, symptoms of depression, adverse effects of sex steroids, and symptoms concerning for deep vein thrombosis or pulmonary embolism.[28]

For transgender males, the goal of therapy is to maintain testosterone in the physiologic normal male range while avoiding adverse events resulting from excess testosterone therapy such as erythrocytosis, sleep apnea, hypertension, excessive weight gain, salt retention, lipid changes, and excessive or cystic acne.[29] In contrast with the Endocrine Society guidelines, the University of California San Francisco (UCSF) guidelines recommend against routine screening for lipids and hemoglobin A1c and recommend following the United States Preventative Services Task Force guidelines to drive decision making.[21] The UCSF guidelines also recognize that serum total testosterone has limitations owing to fluctuations in gonadotropins and recommend calculating the bioavailable testosterone using the total testosterone, albumin and sex hormone–binding globulin with a general reference range of greater than 72 ng/dL.[21] **Box 2** illustrates the current monitoring plan for transgender males as per the Endocrine Society guidelines[25] and **Table 2** provides the UCSF recommended guidelines.[21]

For transgender females either on estrogens, gonadotropin suppression, or antiandrogens, key issues include avoiding supraphysiologic doses or blood levels of estrogen that put the patient at a greater risk of thromboembolic disease, liver dysfunction, or elevations in blood pressure. Clinicians should choose a quality controlled assay for measuring serum estradiol levels to avoid measurement challenges.[30] In a study examining a large Dutch cohort, the risk of venous thromboembolism was shown to be 20-fold increased in Dutch transgender patients using estrogen.[31] This increase may have been associated with the use of the synthetic estrogen, ethinyl estradiol.[32] Given this finding, the use of synthetic estrogens and conjugated estrogens is not recommended because of the inability to monitor and dose based on serum levels in the setting of venous thromboembolism risk.[25] Additionally, in transgender females, periodic prolactin assessment is recommended by the Endocrine Society,[25] because estrogen therapy may increase the growth of pituitary lactotroph cells. Several reports

Box 2
Monitoring of transgender males on gender affirming hormone therapy as recommended by the Endocrine Society guidelines

- Clinical evaluation and monitoring every 3 months in the first year and then every 6 to 12 months appropriate signs of virilization and for development of adverse events.
- Measure serum testosterone every 3 months until levels are in the physiologic male range.
  - For intramuscular preparations, measure midway. The target is 400 to 700 ng/dL.
  - Transdermal testosterone can be measured following 1 week of daily application at least 2 hours after application.
- Measure hematocrit or hemoglobin at baseline and then every 3 months in the first year of therapy. Monitor weight, blood pressure, and lipids at regular intervals.
- Screening for osteoporosis should be undertaken in those who stop testosterone therapy, who develop risks for bone loss, or are nonadherent with therapy.
- If cervical tissue is present, regular screening as recommended by the American College of Obstetricians and Gynecologists.
- Ovariectomy can be considered after completion of hormone transition.
- Conduct annual breast examinations if mastectomy is performed and, if not, then consider mammograms as recommended by the American Cancer Society.

From Hembree WC, Cohen-Kettenis PT, Gooren L, et al. Endocrine treatment of gender-dysphoric/gender-incongruent persons: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab 2017;102(11):3890; with permission.

Table 2
Monitoring of therapy for transgender males: University of California San Francisco guidelines

Parameter	Baseline	Additional Monitoring
Lipids	No evidence supporting, use discretion. Monitor as per USPSTF guidelines	PRN
Hemoglobin A1C or fasting glucose	No evidence supporting, use discretion. Monitor as per USPSTF guidelines	PRN
Estradiol	Not indicated	PRN
Total testosterone	Not indicated	3, 6 and 12[a] months then PRN
Sex hormone-binding globulin[b]	Not indicated	3, 6 and 12[a] months then PRN
Albumin[b]	Not indicated	3, 6 and 12[a] months then PRN
Hematocrit and hemoglobin	Measure	3, 6, 12[a] months, yearly and PRN

Abbreviations: PRN, pro re nata (as needed); USPSTF, US Preventative Services Task Force.
[a] In first year of therapy only.
[b] Used to calculate bioavailable testosterone; monitoring bioavailable testosterone is optional and may be helpful in complex cases.
Adapted from Deutsch MB. Guidelines for the primary and gender-affirming care of transgender and gender nonbinary people. 2nd edition. Available at: http://transhealth.ucsf.edu/pdf/Transgender-PGACG-6-17-16.pdf. Accessed November 12, 2017; with permission.

have demonstrated the development of prolactinomas occurring after long-term, high-dose estrogen therapy, and up to 20% of transgender females treated with estrogens may have elevations in prolactin levels.[33] In contrast, the UCSF guidelines recommend against routine prolactin screening unless there is evidence of visual disturbances, excessive galactorrhea, or new onset of headaches.[21] Last, in general, reference ranges for laboratory values used in monitoring hormonal therapy should take into consideration the identified gender, not the physiologic gender.[21] **Box 3** displays recommended monitoring in transgender females per the Endocrine Society[25] and **Table 3** per the UCSF guidelines.[21]

MENTAL HEALTH AND THE TRANSGENDER PATIENT

Current medical, psychological, and social research has increasingly shown that, while being transgender is not a mental disorder or medical condition, gender dysphoria, the manifestation of psychological distress brought on by the dissonance between assigned gender and felt gender, is a condition that can be treated.[34] The treatments discussed above are affirming of patients' gender identity and can help transgender youth and adults facilitate a successful gender transition. There is increasing evidence that this approach leads to improved health and mental health outcomes.[35–37] To be clear, the treatment of gender dysphoria does nothing to resolve the social stigma, discrimination, oppression, and health disparities that contribute to the high rates of unemployment (double the national average), harassment (78%), physical (61%) or sexual assault (64%), homelessness (double the national average), depression (35%–58%), anxiety (25%), eating disorders (7%), and suicide ideation (51%) and suicide attempts (41%) within the transgender population.[4,38–42] These concerns can be easily screened for during medical visits.

Box 3
Monitoring of transgender females on gender affirming hormone therapy as recommended by the Endocrine Society guidelines

- Evaluate patient every 3 months in the first year and then 6 to 12 months to monitor for appropriate signs of feminization and for development of adverse reactions.
- Measure serum testosterone and estradiol levels every 3 months.
  - Goal serum testosterone level is less than 50 ng/dL.
  - Serum estradiol should not exceed the peak physiologic range: 100 to 200 pg/mL.
- For patients taking spironolactone, serum electrolytes including potassium should be monitored every 3 months in the first year and annually thereafter.
- Routine cancer screening is recommended as in nontransgender individuals (all tissues present).
- Consider bone mineral density testing at baseline. In patients at low risk, screening for osteoporosis should be conducted at 60 years of age or in those who are not compliant with hormone therapy.

From Hembree WC, Cohen-Kettenis PT, Gooren L, et al. Endocrine treatment of gender-dysphoric/gender-incongruent persons: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab 2017;102(11):3890; with permission.

Transgender or gender diverse adolescents are especially vulnerable, because they are experiencing gender identity development at the same time that they may be exploring their sexual orientation, while also going through puberty and navigating high school. Coming out to friends and family, managing school policy around using

Table 3
Monitoring of therapy for transgender females: University of California San Francisco guidelines

Parameter	Baseline	Additional Monitoring
Lipids	No evidence supporting, use discretion. Monitor as per USPSTF guidelines.	PRN
A1C or fasting glucose	No evidence supporting, use discretion. Monitor as per USPSTF guidelines.	
Estradiol	Not indicated.	3, and 6[a] months, PRN
Total testosterone	Not indicated.	3, 6 and 12[a] months then PRN
Sex hormone–binding globulin[b]	Not indicated.	3, 6 and 12[a] months then PRN
Albumin[b]	Not indicated.	3, 6 and 12[a] months then PRN
Prolactin	Only if symptoms of prolactinoma.	PRN
Bun/Cr/K[c]	Measure.	3, 6, 12[a] months, yearly and PRN

Abbreviations: BUN/Cr/K, blood urea nitrogen, creatinine, potassium; PRN, pro re nata (as needed); USPSTF, US Preventative Services Task Force.

[a] In first year of therapy only.

[b] Used to calculate bioavailable testosterone; monitoring bioavailable testosterone is optional and may be helpful in complex cases.

[c] For patients on spironolactone only.

Adapted from Deutsch MB. Guidelines for the primary and gender-affirming care of transgender and gender nonbinary people. 2nd edition. Available at: http://transhealth.ucsf.edu/pdf/Transgender-PGACG-6-17-16.pdf. Accessed November 12, 2017; with permission.

the bathroom or locker room, and having preferred name and pronouns used appropriately by others are just a few experiences unique to transgender youth. The amount of psychosocial stress that is endured by these youth cannot be overstated. In just 1 clinic, the Transgender Health Clinic at Cincinnati Children's, 30% of the transgender youth that they served reported at least 1 suicide attempt; a history of self-injury was reported by 42% of the youth they served.[43]

Clinicians in a primary care setting are often in an optimal position to provide support to transgender individuals. Understanding the risks and recognizing that transgender patient's access to medical or mental health care may be limited is key in maximizing the work that can be done during their visit.

CONSIDERATIONS FOR SPECIAL POPULATIONS

Pediatric and Adolescent Patients

There is no universal treatment path that can, or should, be applied to all transgender children and youth. Often, treatment includes 1 or more of the following: psychotherapy, social transition, use of puberty blockers to delay the onset of puberty, hormone replacement therapy, and surgical options for young adults, 18 or older. All of these treatments can be used in an effort to relieve gender dysphoria by helping to align one's body with one's gender identity, allowing the individual to live and present in the world as the gender they authentically feel themselves to be.

In minor children presenting with gender dysphoria for a period of over 6 months who have not yet started puberty or who have not yet progressed beyond Tanner stage II of puberty, the suggested treatment includes supportive efforts to help the child explore their gender identity.[25] This process may include support from a mental health provider trained in working with gender diverse children, efforts toward social transition, and the possible use of puberty blockers (leuprolide or histrelin). Puberty blockers are medications that suppress the increase of testosterone and estrogen in the body, delaying puberty until the blockers are discontinued. Because puberty blockers have been used for decades in children with precocious puberty,[44] they are considered a safe alternative to having a child with gender dysphoria progress through a puberty that they feel is incorrect and therefore exacerbates gender dysphoria and increases the risk of self-harm, including suicide.[25] This treatment option buys the patient some time to continue gender identity development and exploration until they are older and can make a more informed decision about what puberty would be most appropriate for them. The Endocrine Society guidelines recommend clinicians inform and counsel all individuals seeking gender-affirming medical treatment regarding options for fertility preservation before initiating puberty suppression in adolescents and before treating with hormonal therapy of the affirmed gender in both adolescents and adults.[25]

In youth with gender dysphoria who have already started puberty, are beyond Tanner stage II, and have reached 16 years of age, the suggested medical treatment includes the use of hormone replacement therapy or gender-affirming hormones.[21,25] Gender-affirming hormones effectively cause the transgender youth to go through a second puberty, which brings about either the masculinization or feminization of their bodies and features. Because the sex hormones, estrogen and testosterone, are found in both natal males and natal females, providing hormone replacement therapy acts to rebalance the dominant hormone in the patient to match the patient's gender identity.

Because the transgender youth who are seeking treatment are minors, it is recommended that informed consent be obtained by a legal guardian, as well as assent (for

adolescents) from the patient. Guardians and patients should be provided the information, education and resources to help them make informed decisions about the treatment options available to alleviate gender dysphoria and improve long-term health and mental health outcomes.

Aging and Elderly Patients

Like cisgender individuals, transgender people are subject to the vagaries of aging, and the potential conditions related to it. In general, screening and treatment of age-related illnesses in this population should be no different than in cisgender patients, with the exception of the use of appropriate organ inventories to guide screening. However, it is important to note that, for some transgender patients, it is only in later ages and stages of life that they feel safe to approach health care providers and others about their symptoms of gender dysphoria. Health care providers should be sensitive to, and have comfort with, discussing sexual orientation and gender identity issues with all aging patients. For transgender people who are aging, it is particularly important that primary care providers be familiar with the diagnosis of gender dysphoria and available treatments, including hormone therapy, mental health care, and surgical procedures. It is also important to address the potential for isolation and violence in the home as potential threats to aging transgender people.[45] A high index of suspicion for substance abuse, particularly alcohol use and misuse, is important. The combination of isolation, substance abuse, and depression can be particularly lethal for both cisgender and transgender elderly people, but the addition of stigma and the potential for violence and physical and mental abuse is particularly high among transgender individuals compared with their cisgender counterparts.[46] Overall, a high degree of compassion and sensitivity, combined with knowledge on the provider's part of current available therapies and best practices in medical record-keeping will help to ensure affirming care of aging transgender patients.

SUMMARY

As a growing number of transgender individuals become empowered to seek primary care, it is imperative that providers are prepared to meet their health care needs. This requires providers to approach these patient encounters with cultural humility and sound medical knowledge based on current guidelines. As new research emerges in the field of trans health clinicians will need to stay abreast of current best practices. In the meantime, clinicians could enhance care by creating a transgender-friendly office environment, conducting an annual organ inventory, updating their EHR system to incorporate transgender-friendly data collection, and taking into consideration current guidelines for gender affirmation, transition, screening, and prevention in this population.

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